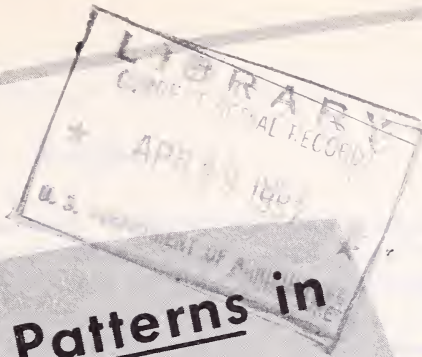


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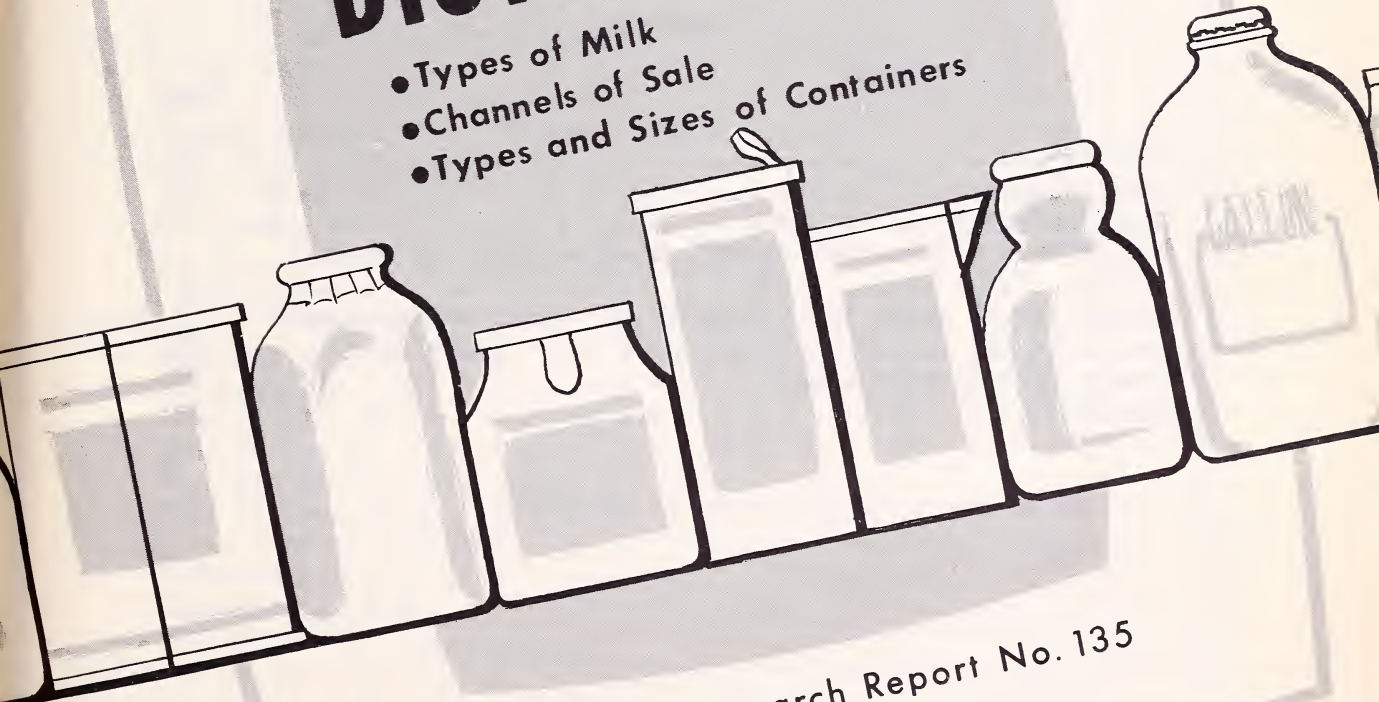
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Changing Patterns in

FLUID MILK DISTRIBUTION

- Types of Milk
- Channels of Sale
- Types and Sizes of Containers



Marketing Research Report No. 135

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PREFACE

This report was designed to make available information on current practices and trends in milk marketing at a number of important markets as an aid in the study of marketing margins and costs for fluid milk. This study is related to other studies of marketing margins which are under way in the Department of Agriculture.

In providing themselves with fresh milk, consumers in the United States have paid well over a billion dollars annually for marketing services. Therefore they have much interest in variations that exist in fluid milk margins. These differences can be explained only by giving details of the operations of the milk distribution system.

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SUMMARY

Long-established methods of fluid milk distribution have been giving way to new developments in marketing, as distributors try to keep abreast of consumers' changing tastes and buying habits.

Homogenized milk is rapidly replacing regular milk in nearly all of the markets included in this study. Vitamins are frequently added to homogenized milk as well as to regular milk. Milk drinks and other special milks make up a significant but relatively small portion of the total sales of fluid milk, reflecting the variety of choices available to consumers.

Milk dealers' sales on home-delivery routes continue to lose to the dealers' wholesale outlets, including retail stores. Most of the wholesale sales reach consumers through stores.

Sales of milk in glass containers still exceed sales in fiber or paper containers. However, in all markets for which data are available sales in glass are declining relative to sales in other containers. In some markets the gallon and half-gallon glass jug has a firm position, with the size of container appearing to be the determining factor.

Changes in milk purchases by size of container have been related to the changes in the types of milk sold, types of sales, and types of containers used in the markets. The quart container is still the most widely used, although it is losing ground. The half-gallon container is second in the proportion of sales of fluid milk; its use has been growing rapidly. Gallon containers are used in nearly all markets and are especially important in Chicago. Third-quarts and half-pints are used for only small percentages of sales in most markets. These sizes appear to be giving way to bulk dispensers in public eating places in many cities.

CHANGING PATTERNS IN FLUID MILK DISTRIBUTION

Types of Milk
Channels of Sale
Types and Sizes of Containers

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INTRODUCTION

Methods of distributing milk have changed nearly everywhere in the United States in recent years. Sales of homogenized milk have increased sharply while sales of regular milk have declined, dealers' sales to stores and other outlets have increased while sales on home-delivery routes have declined, paper containers have been displacing glass, and half-gallon and gallon containers have become increasingly popular. People frequently ask for statistics showing what these changes are regionally or nationally, but such figures are not available. The data in this report were developed for the purpose of making available comparisons and trends which have a bearing on marketing margins in selected fluid milk markets. 1/

CHARACTERISTICS OF THE DATA

The data presented here were originally compiled independently by administrators of markets under a Federal milk marketing order, State statisticians, and State milk control authorities. The forms in which the data were originally gathered and published were nearly as diverse as the reporting agencies. The data are for the most part a byproduct of price control programs: Reports and records kept by milk dealers.

Compiling data for a single market is a huge task, and local authorities have done it only in response to urgent local demands. The data began to be collected at different dates; in many markets they were collected sporadically, and the present compilation necessarily shows lack of coordinated timing. Some agencies compiled data on types of milk only, others on sizes of containers only, and still others compiled cross classifications in various combinations. The units in which quantities of milk were reported likewise varied. When the number of containers and their sizes were known, the quantities of milk could be computed; the data were then converted to percentages.

1/ Statistics for earlier years were published in Pre-War Developments in Milk Distribution by Louis F. Herrmann and William C. Welden, Miscellaneous Report No. 62 (U. S. Farm Credit Administration), Nov. 1942. (Out of print.)

TRENDS IN THE SALES OF REGULAR, HOMOGENIZED, AND SPECIAL MILK

In 1955 (or late 1954 if 1955 figures were not available), 90 to 94 percent of the milk sold in Cleveland, Ohio, St. Louis, Mo., San Antonio, Tex., and the New York market area was homogenized. Regular milk and special types had virtually disappeared in these cities. In 5 other markets, homogenized milk accounted for more than two-thirds of all sales. Rochester, N. Y., was an exception among the 9 markets, 54 percent of the milk sold being homogenized, 6 percent special, and 40 percent regular (fig. 1).

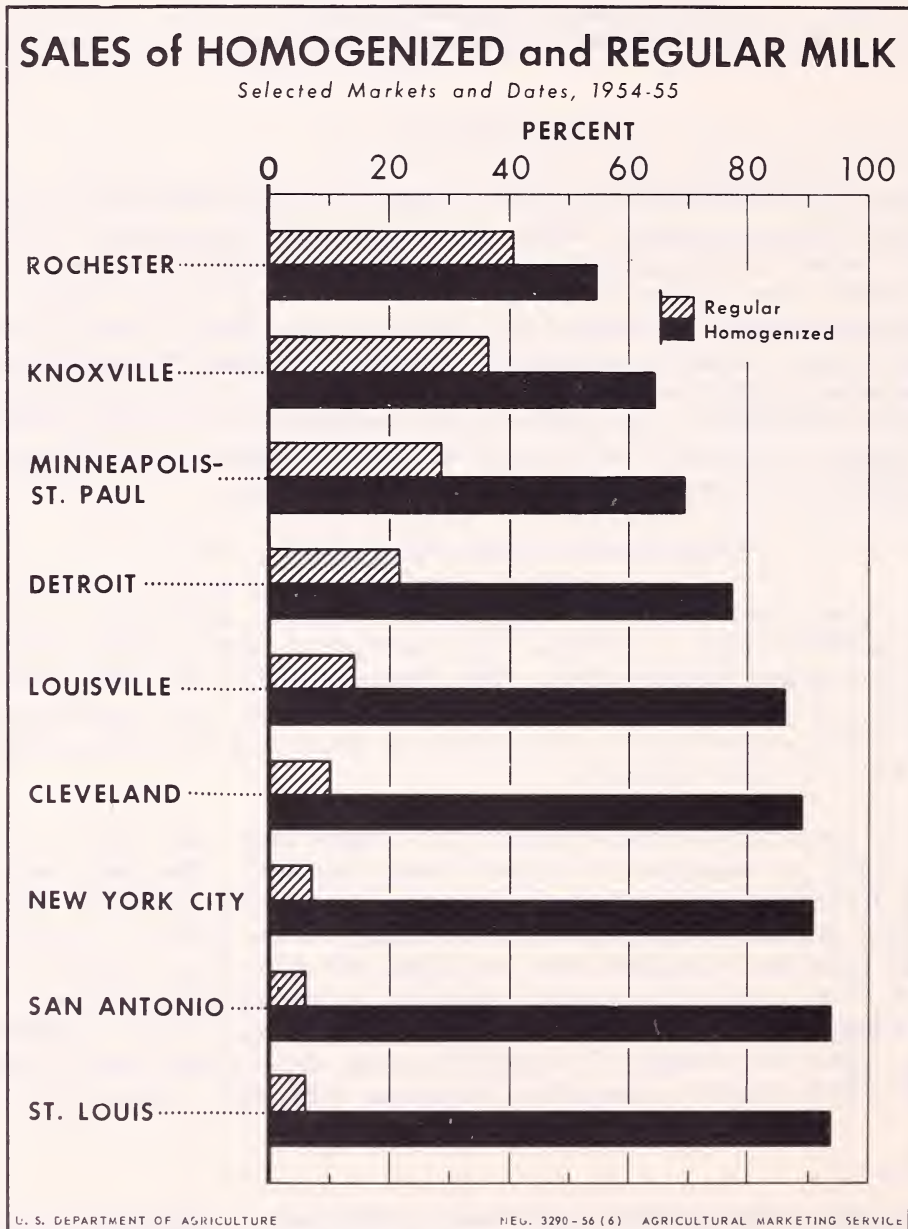


Figure 1

Special milks ranged from none to 6 percent in 6 markets. Among the kinds of milk included in this group are certified milk, breed milks, and other kinds of whole milk for which premium prices are usually paid.

In markets for which the data cover recent periods of 4 to 5 years, homogenized milk sales grew substantially. Dealers' sales of homogenized milk as well as special flavor and vitamin content milk have increased. The consumption of Grade A and certified milk has declined. These milks differ from regular milk only in the amount of care and sanitary supervision given them. Because the quality of milk in most markets has improved, the consumer need no longer have a marked preference among milks on grounds of safety and sanitation.

Cleveland, Ohio

Sales of regular milk showed a very definite decline from about 30 percent to 10 percent of total sales between March 1949 and March 1955 in Cleveland, Ohio. Sales of homogenized milk increased from 68 percent of total sales to 89 percent, and the sales of special milk fluctuated slightly but remained around 1 percent during the same period.

Table 1.--Cleveland, Ohio: Proportion of sales of regular, homogenized, and special milk, March 1949-55

Date	: : Regular	: : Homogenized	: : Special	: : Total
	: :	: :	: :	: :
	: : Percent	: : Percent	: : Percent	: : Percent
March	:	:	:	:
1949	: 30.4	: 68.5	: 1.1	: 100.0
1950	: 29.0	: 69.6	: 1.4	: 100.0
1951	: 25.1	: 73.6	: 1.3	: 100.0
1952	: 22.0	: 76.5	: 1.5	: 100.0
1953	: 18.1	: 81.0	: .9	: 100.0
1954	: 12.6	: 86.5	: .9	: 100.0
1955	: 10.2	: 89.0	: .8	: 100.0
	: :			

Compiled from reports of the Market Administrator.

Columbus, Ohio

From March 1948 to March 1953 the sales of regular milk as a proportion of total sales of milk decreased from 59 to 27 percent in Columbus, Ohio. Sales of homogenized milk increased from 35 to 70 percent and special milk declined from 6 to 3 percent.

Table 2.--Columbus, Ohio: Proportion of sales of regular, homogenized, and special milk, March 1948-53

Date	Regular	Homogenized	Special	Total
	Percent	Percent	Percent	Percent
March				
1948	59.2	35.0	5.8	100.0
1949	52.0	43.2	4.8	100.0
1950	42.5	52.1	5.4	100.0
1951	36.5	58.8	4.7	100.0
1952	31.9	63.8	4.2	100.0
1953	26.7	70.1	3.2	100.0

Compiled from reports of the Market Administrator.

Detroit, Mich.

A comparison of sales by types of milk for September and October 1952, 1953, and 1954 in Detroit, Mich., shows that regular milk fell from 29 to 21 percent of total sales. Homogenized was favored to the extent of an increase from 68 to 77 percent. Special milk declined from 3 to 2 percent for the same date. The changes in the reported sales of this market were consistent over the 2-year period.

Table 3.--Detroit, Mich.: Proportion of sales of regular, homogenized, and special milk, selected dates, 1952-54

Date	Regular	Homogenized	Special	Total
	Percent	Percent	Percent	Percent
1952				
September....	28.7	68.2	3.1	100.0
October.....	29.6	66.9	3.5	100.0
1953				
September....	23.9	73.6	2.5	100.0
October.....	25.1	72.1	2.8	100.0
1954				
September....	20.8	77.1	2.1	100.0
October.....	21.0	76.8	2.2	100.0

Compiled from reports of the Market Administrator.

Knoxville, Tenn.

Table 4.--Knoxville, Tenn.: Proportion of sales of regular and homogenized milk, by months, January-June 1954 1/

Date	Regular	Homogenized	Total
	Percent	Percent	Percent
1954			
January.....	36.2	63.8	100.0
February....	35.3	64.7	100.0
March.....	34.4	65.6	100.0
April.....	33.5	66.5	100.0
May.....	34.0	66.0	100.0
June.....	36.2	63.8	100.0

1/ Based on handlers' reports.

Compiled from reports of the Market Administrator.

Louisville, Ky.

From June 1951 to June 1955 sales of regular milk in Louisville, Ky., dropped from 54 percent of the total milk sales to 14 percent. There was a corresponding increase in sales of homogenized milk.

Table 5.--Louisville, Ky.: Proportion of sales of regular and homogenized milk, selected dates, 1951-55

Date	Regular	Homogenized	Total
	Percent	Percent	Percent
1951			
June.....	54.2	45.8	100.0
December....	52.0	48.0	100.0
1952			
June.....	44.7	55.3	100.0
December....	36.4	63.6	100.0
1953			
June	28.5	71.5	100.0
December....	23.9	76.1	100.0
1954			
June	20.2	79.8	100.0
December....	16.0	84.0	100.0
1955			
June	14.0	86.0	100.0

Compiled from reports of the Market Administrator.

Minneapolis-St. Paul, Minn.

Sales of regular milk in Minneapolis and St. Paul, Minn., dropped from 51 percent of total sales in 1950 to 29 percent in 1955. Homogenized milk sales rose from 43 percent to 69 percent at the expense of sales of regular milk and of special milk. The latter declined from 5 to 2 percent over the 5-year period.

Table 6.--Minneapolis, Minn.: Proportion of sales of regular, homogenized, and special milk, 1950-54

Year	Regular	Homogenized	Special	Total
	Percent	Percent	Percent	Percent
1950.....	51.2	43.3	5.5	100.0
1951.....	45.8	49.8	4.4	100.0
1952.....	41.1	55.5	3.4	100.0
1953.....	35.2	62.0	2.8	100.0
1954.....	28.8	68.9	2.3	100.0

Compiled from reports of the Market Administrator.

New York Marketing Area

In the New York marketing area, sales of regular milk decreased from about 30 percent of total sales in January 1949 to 9 percent in January 1955. Meanwhile, homogenized milk sales increased from 61 percent in 1949 to 89 percent in 1955. Sales of special milk fell from 9 percent in January 1949 to 2 percent in January 1955. In the New York City portion of the marketing area 91 percent of the total sales in January 1955 were of homogenized milk. In the counties of Nassau, Suffolk, and Westchester homogenized milk was less important, though it still accounted for 76 percent of total sales.

Table 7.--New York: Proportion of sales of regular, homogenized, and special milk in the marketing area, selected dates, 1949-55 ^{1/}

Date	Market	Regular	Homo- genized	Special	Other	Total
		Pct.	Pct.	Pct.	Pct.	Pct.
January						
1949...	New York marketing area	30.2	60.7	9.1	---	100.0
1951...	New York marketing area	20.4	72.9	6.7	---	100.0
1955...	New York marketing area	9.1	88.6	2.0	0.3	100.0
	: Nassau, Suffolk, and					
	: Westchester Counties	21.4	75.7	2.7	.2	100.0
	: New York City	7.0	91.0	1.8	.2	100.0

^{1/} These statistics represent reports from dealers handling almost 85 percent of the milk distributed in the marketing area.

Compiled from reports of the Market Administrator.

Rochester, N. Y., Marketing Area

Very significant changes have occurred in the sales among the types of fluid milk sold in the Rochester, N. Y., marketing area during the period May 1944 to May 1954. Sales of milk shifted from regular and special to homogenized milk. Regular milk sales decreased from 68 percent of the total sales in 1944 to 40 percent of the total sales in 1954. Homogenized milk increased from 11 percent of total sales in 1944 to 54 percent in 1954, and sales of special milk fell from about 20 percent in 1944 to 6 percent in 1954.

Table 8.--Rochester, N. Y.: Proportion of sales of regular, homogenized, and special milk in the marketing area, selected dates, 1944-54

Date	Regular	Homogenized	Special	Total
	Percent	Percent	Percent	Percent
May				
1944.....	68.5	11.1	20.4	100.0
1946.....	63.7	14.3	22.0	100.0
1948.....	66.1	19.6	14.3	100.0
1950.....	58.4	30.4	11.2	100.0
1954.....	39.9	54.4	5.7	100.0

Compiled from Analysis of Sales of Milk, Cream, and Milk Drinks, The Rochester Milk Marketing Area, May 1954, State of New York Department of Agriculture and Markets. Clough, L. L., and Lemmon, R. J., Nov. 15, 1954. (39 pp. mimeograph.)

San Antonio, Tex.

In 1954 and 1955 sales of regular milk constituted only a minor part of total milk sold in San Antonio, Tex.; about 10 percent in 1954 and 6 percent in 1955. Homogenized milk sales increased from about 90 percent to 94 percent. Sales of special milk, if any, were not reported separately.

Table 9.--San Antonio, Tex.: Proportion of sales of regular and homogenized milk, selected dates, 1954-55

Date	Regular	Homogenized	Total
	Percent	Percent	Percent
1954.....			
April.....	10.6	89.4	100.0
June.....	10.2	89.8	100.0
1955.....			
May.....	6.3	93.7	100.0
June.....	6.3	93.7	100.0

1/ Includes small percentage of special milk.

Compiled from reports of the Market Administrator.

St. Louis, Mo., Marketing Area

From July 1944 to November 1954 the sales of regular milk in St. Louis, Mo., marketing area decreased from about 54 percent of the total sales to only 6 percent. Sales of homogenized milk increased from 46 percent to 94 percent in the same period. Special milks were not reported separately.

Table 10.--St. Louis, Mo.: Proportion of sales of regular and homogenized milk in the marketing area, selected dates, 1941-54

Date	: : Regular :	: : Homogenized :	: : Total :
	: : Percent :	: : Percent :	: : Percent :
July	:	:	:
1941	73.2	26.8	100.0
1942	69.5	30.5	100.0
1943	61.3	38.7	100.0
1944	54.4	45.6	100.0
1945	46.8	53.2	100.0
1946	40.9	59.1	100.0
1947	36.2	63.8	100.0
1948	31.0	69.0	100.0
November	:	:	:
1948	29.6	70.4	100.0
July	:	:	:
1949	26.7	73.3	100.0
November	:	:	:
1949	24.9	75.1	100.0
July	:	:	:
1950	21.4	78.6	100.0
August	:	:	:
1951	16.2	83.8	100.0
May	:	:	:
1952	14.3	85.7	100.0
November	:	:	:
1952	12.2	87.8	100.0
1953	9.3	90.7	100.0
1954	6.0	94.0	100.0
	:	:	:

Compiled from reports of the Market Administrator.

Western States

A report covering six Western States showed that in 1953 homogenized milk accounted for more than 70 percent of the Grade A milk utilized for fluid consumption. Around two-thirds of the milk used in Colorado, Wyoming, Washington, Oregon, and Utah was homogenized milk while Idaho had its percentage evenly distributed. About 30 percent of the total amount consumed was cream line or regular milk. Considerable variation existed within the area.

Table 11.--Western States: Proportion of sales of regular and homogenized milk, by selected States, 1953

State	Regular	Homogenized	Total
	Percent	Percent	Percent
Colorado	6	94	100
Wyoming	21	79	100
Utah	36	64	100
Idaho	50	50	100
Oregon	32	68	100
Washington	29	71	100
Weighted average	28	72	100

Compiled from Bul. 342, Marketing Grade A Milk--Movement, Utilization, and Pricing in Six Western States and Alaska, by Willard D. Schutz, Wyo. Agr. Expt. Sta., June 1956.

TRENDS IN SALES OF FLUID MILK AT RETAIL AND WHOLESALE

The volume of fluid milk sold on regular retail home-delivery routes has decreased in recent years by varying proportions. Some markets have undergone drastic changes in their methods of distribution and others have remained fairly stable. While the changes have varied widely from market to market, there have been some changes in the structure in all markets.

The changes experienced are due to many factors. Milk is a preferred item of trade in some chainstores. Some milk distributors emphasize retail routes while others sell at wholesale exclusively. The development of specialized dairy stores has been one of the channels of increased store sales. Many of these stores carry a diversified line of dairy products along with milk. The vendor or peddler is also an important segment of the dealer structure in some markets.

It must be kept in mind that milk dealers' sales at wholesale include not only their sales to stores but also their sales to restaurants, hotels, and institutions. Records of milk dealers usually separate sales into retail and wholesale. Government milk control agencies which provide most of the available data rarely attempt to separate sales to stores from other wholesale accounts.

The proportion of milk sold at wholesale in the marketing areas of Minneapolis-St. Paul, New York, St. Louis, Rochester, and California in 1954 and 1955 ranged from 55 percent to 76 percent of milk dealers' total sales. In California sales of milk on wholesale routes have decreased while the sales at the plant platform--largely to peddler routes--have increased by approximately the same proportion for the same period.

New York has had a large proportion of its milk sales through stores for a long time but the proportion increased between 1949 and 1955. The proportion of the milk which dealers sell at wholesale is not nearly so great in the Nassau, Suffolk, and Westchester Counties part of the New York marketing area as in the New York City part of the area.

The Rochester, N. Y., marketing area had the lowest proportion of sales at wholesale among the 5 markets for which data were available. There was a small change from retail home-delivery sales to wholesale sales to stores between 1944 and 1954. In this market sales to wholesale outlets other than stores remained relatively steady at about 30 percent of total sales over the 10-year period.

The zigzag pattern in the sales of milk at wholesale for the St. Louis area reflects a series of innovations. Milk in gallon jugs appears to have stimulated store sales only to be displaced by the 2-quart container on retail routes.

California

Fluid milk distributors in the districts and counties reporting in California show little variation in the proportion of milk sold through the home-delivery routes, wholesale, and peddler-platform channels of distribution from 1951 to 1955. Sales of fluid milk on retail sales routes were 32 percent of total route sales in 1951 and remained at 32 percent of the total for 1955. Wholesale route sales were 58 percent of total sales in 1951 and decreased to 55 percent in 1955. The peddler-platform sales of fluid milk showed an increase from 11 percent in 1951 to 13 percent in 1955 reflecting a slight growth in the popularity of the vendor.

Table 12.--California: Proportion of dealers' sales of fluid milk, by type of sales route, October 1951-55 1/

Date	Retail	Wholesale	Peddler-platform	Total
	Percent	Percent	Percent	Percent
October				
1951	31.8	57.5	10.7	100.0
1952	30.4	57.8	11.8	100.0
1953	30.4	57.3	12.3	100.0
1954	32.2	54.6	13.2	100.0
1955	32.2	54.8	13.0	100.0

1/ These data include counties comprising 8 districts with additional counties varying in number from year to year.

Compiled from reports of the California Crop and Livestock Reporting Service, State of California, Department of Agriculture, Division of Marketing, Bureau of Agricultural Statistics.

Minneapolis-St. Paul, Minn., Marketing Area

The proportion of fluid milk sold in the Minneapolis-St. Paul, Minn., marketing area at retail in 1950 was 48 percent of the total sales and dropped to 43 percent of the total in 1954. Wholesale transactions accounted for 52 percent of the total sales in 1950 and increased to 57 percent in 1954.

Table 13.--Minneapolis-St. Paul: Proportion of dealers' sales of fluid milk at retail and at wholesale in the marketing area, 1950-54

Date	Retail	Wholesale	Total
	Percent	Percent	Percent
1950	48.4	51.6	100.0
1951	45.2	54.8	100.0
1952	44.6	55.4	100.0
1953	43.8	56.2	100.0
1954	43.2	56.8	100.0

Compiled from reports of the Market Administrator.

Table 14.--Minneapolis-St. Paul: Proportion of dealers' sales of fluid milk at retail and at wholesale outlets in the marketing area, by type of milk, 1950-54

Date	Retail				Wholesale			
	Regular	Homogenized	Special	Total	Regular	Homogenized	Special	Total
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1950	28.7	17.4	2.3	48.4	22.5	26.0	3.2	51.6
1951	24.7	18.8	1.7	45.2	21.1	31.0	2.7	54.8
1952	22.1	21.2	1.4	44.6	19.0	34.3	2.2	55.4
1953	18.9	23.8	1.1	43.8	16.4	38.2	1.7	56.2
1954	15.5	26.7	.9	43.2	13.3	42.2	1.3	56.8

Compiled from reports of the Market Administrator.

New York Marketing Area

From January 1949 to January 1955 a slight shift occurred in dealers' sales of fluid milk between the home-delivery routes and the wholesale trade outlets in the New York marketing area.

Sales of fluid milk on home-delivery routes in the New York marketing area in 1949 were 30 percent of the total sales, dropping to 24 percent by 1955. Dealers' sales of fluid milk at wholesale in the marketing area were 70 percent of the total sales in 1949 and 76 percent of total sales in 1955. The proportion of milk dealers' sales of fluid milk at retail and at wholesale differ substantially between New York City and the counties of Nassau, Suffolk, and Westchester which comprise the suburban part of the area. The percentage of dealers' fluid milk sales at retail in the suburban counties was nearly double that in New York City.

Table 15.--New York: Proportion of dealers' sales of fluid milk at retail and wholesale, by specified marketing areas, January 1949, 1951, 1955

Date	Market	Retail	Wholesale	Total
		Percent	Percent	Percent
January 1949	New York Mktg. area	30.4	69.6	100.0
1951	New York Mktg. area	25.5	74.4	100.0
1955	New York Mktg. area	24.3	<u>1/</u> 75.7	100.0
	: Nassau, Suffolk, and			
	: Westchester Counties	42.5	<u>1/</u> 57.5	100.0
	: New York City	21.7	<u>1/</u> 78.3	100.0

1/ Includes small percentage for restaurants, schools, and vending machines.

Compiled from reports of the Market Administrator.

Rochester, N. Y., Marketing Area

In the Rochester, N. Y., marketing area in 1944 sales of fluid milk on home-delivery routes were about 53 percent of the total of all fluid milk sales. By 1954 these sales had declined to 45 percent of the total. The volume of milk handled and the consumption of fluid milk and fluid milk products by a larger population has accounted to some extent for the rapid growth of dealers' sales of milk at wholesale, according to Clough and Lemmon 2/. Relaxation of wartime regulations which existed during the 1944-46 period had a marked effect upon wholesale sales in 1948. New equipment became available after 1946, more extensive use was made of newer type containers, and a continuous expansion in the number of fluid milk products handled by the dealers contributed to the shift from retail sales to wholesale sales of fluid milk in the Rochester market during the 10-year period. During this period dealers' sales of fluid milk at wholesale increased from 47 percent of total fluid milk sales to 55 percent.

Table 16.--Rochester, N. Y.: Proportion of dealers' sales of fluid milk at retail and wholesale in the marketing area, selected dates, May 1944-54

Date	Retail	Wholesale	Total
	Percent	Percent	Percent
1944	52.8	47.2	100.0
1946	53.2	46.8	100.0
1948	49.8	50.2	100.0
1950	49.2	50.8	100.0
1954	44.8	55.2	100.0

Store sales were defined by Clough and Lemmon as sales made to grocery stores to be resold in the same container, and sales made by dealers at their own stores or plants for consumption off the premises. Store sales of all fluid milk in the Rochester area rose from 18 percent of all sales in 1944 to 23 percent of all sales in 1954. The sales through other wholesale channels fluctuated over the period, rising from 30 percent of total wholesale sales in 1944 to 32 percent in 1954. The same reasons can be given for the continuous growth of sales of fluid milk through each wholesale outlet; namely, increased popularity of homogenized milk and other milk products; feasibility of use of the newer glass and paper containers for home, restaurant, and institutional use; and for coin-operated vending machines. The relationship of store sales to other sales by dealers at wholesale is shown in table 17.

2/ For source of data, see table 8.

Table 17.--Rochester, N. Y.: Proportion of dealers' sales of fluid milk at wholesale in the marketing area, by specified sales, selected dates, 1944-54

Date	Wholesale		
	Store	Other <u>1/</u>	Total
	Percent	Percent	Percent
May			
1944	17.6	29.6	47.2
1946	19.0	27.8	46.8
1948	19.6	30.6	50.2
1950	20.7	30.1	50.8
1954	23.3	31.9	55.2

1/ Restaurants, institutions, and schools.

For source of data, see table 8.

The proportion of sales of regular, homogenized, and special milk have not varied greatly either on retail delivery routes or at wholesale levels during the 10-year period (table 18). Retail route sales of regular milk were 57 percent of total sales of regular milk in 1944 and 60 percent in 1954. Dealers' sales of regular milk at wholesale were 24 percent in 1944 and 32 percent in 1954. Sales of regular milk through restaurants, institutions, and schools declined from 19 percent in 1944 to 8 percent in 1954. The sales of homogenized milk on retail routes showed a 2-percent decline while the wholesale sales increased from 8 percent to 20 percent in the 1944-54 period. Sales of homogenized milk through other channels also decreased. Special milk sold on home-delivery routes fell from 75 percent of total special milk sales in 1954 to 70 percent in 1954. The sales of special milk at wholesale increased from 20 percent in 1944 to 28 percent in 1954. Special milk sold through other channels also fell by 4 percent. These shifting patterns, which do not appear to vary greatly, denote changes in preference either for the product sold or for the container used.

Table 18.--Rochester, N. Y.: Proportion of dealers' sales of fluid milk at retail and wholesale in the marketing area, by type of milk, selected dates, 1944-55

Regular								
Date	:	Retail	:	Wholesale	:	Other <u>1/</u>	:	Total
	:		:		:		:	
	:	Percent	:	Percent	:	Percent	:	Percent
May	:		:		:		:	
1944	:	56.8	:	23.8	:	19.4	:	100.0
1946	:	56.3	:	26.5	:	17.2	:	100.0
1948	:	57.0	:	28.2	:	14.8	:	100.0
1950	:	59.3	:	30.3	:	10.4	:	100.0
1954	:	60.4	:	31.8	:	7.8	:	100.0
	:		:		:		:	
Homogenized								
	:		:		:		:	
1944	:	19.2	:	8.4	:	72.4	:	100.0
1946	:	18.5	:	5.2	:	76.3	:	100.0
1948	:	21.7	:	9.3	:	69.0	:	100.0
1950	:	22.3	:	10.6	:	67.1	:	100.0
1954	:	17.3	:	19.9	:	62.8	:	100.0
	:		:		:		:	
Special								
	:		:		:		:	
1944	:	74.5	:	19.8	:	5.7	:	100.0
1946	:	74.8	:	20.9	:	4.3	:	100.0
1948	:	74.0	:	23.7	:	2.3	:	100.0
1950	:	73.2	:	24.9	:	1.9	:	100.0
1954	:	70.4	:	27.8	:	1.8	:	100.0
	:		:		:		:	

1/ Restaurants, institutions, and schools.

For source of data, see table 8.

St. Louis, Mo., Marketing Area

Dealers' retail sales of fluid milk in the St. Louis marketing area remained about as high through 1952 as they had been in 1939. In July 1939 and May 1952 retail sales by milk dealers were 53 percent of their total fluid milk sales. The low and high points in between were 49 percent in July 1943 and 58 percent in July 1947. Prior to 1947, sales of fluid milk through the plant stores were included in the wholesale records and sales to peddlers were reported with retail sales. Beginning with July 1947, sales to peddlers are reported as wholesale sales and all sales through plants are now shown as retail. All sales of fluid milk in the pint, half-pint, and third-quart containers are included in wholesale sales for the St. Louis marketing area.

Table 19.--St. Louis, Mo.: Proportion of dealers' sales of fluid milk at retail and wholesale in the marketing area, selected dates, 1939-54

Date	:	Retail	:	Wholesale	:	Total
	:		:		:	
	:	Percent	:	Percent	:	Percent
July	:		:		:	
1939.....	:	53.4	:	46.6	:	100.0
1940.....	:	56.1	:	43.6	:	100.0
1941.....	:	54.7	:	45.3	:	100.0
1942.....	:	49.5	:	50.5	:	100.0
1943.....	:	48.6	:	51.4	:	100.0
1944.....	:	52.6	:	47.4	:	100.0
1945.....	:	53.8	:	46.2	:	100.0
May	:		:		:	
1946.....	:	57.5	:	42.5	:	100.0
July	:		:		:	
1947.....	:	58.4	:	41.6	:	100.0
August	:		:		:	
1948.....	:	55.6	:	44.4	:	100.0
July	:		:		:	
1949.....	:	56.4	:	43.6	:	100.0
1950.....	:	56.5	:	43.5	:	100.0
August	:		:		:	
1951.....	:	52.4	:	47.6	:	100.0
May	:		:		:	
1952.....	:	53.0	:	47.0	:	100.0
November	:		:		:	
1952.....	:	51.2	:	48.8	:	100.0
1953.....	:	49.3	:	50.7	:	100.0
1954.....	:	42.6	:	57.4	:	100.0

Compiled from reports of the Market Administrator.

TRENDS IN THE USE OF GLASS AND PAPER MILK CONTAINERS

The changes in types and sizes of containers have been the most striking changes in the distribution of fluid milk. New sizes of glass containers and modified forms of both jug and bottle have appeared. Sanitary regulations and economy have been factors in the improvement of bottle caps and containers.

Sales of fluid milk in glass containers accounted for 33 to 70 percent of the total milk sold in the Detroit, Minneapolis-St. Paul, New York City, and St. Louis marketing areas in 1954 and 1955. Glass containers were more widely used in 5 Ohio markets than any other type of container. The city of Akron is accredited with being the birthplace of the gallon jug. In Akron, 33 percent of the whole milk distributed was in glass jugs and 81 percent of the total milk distributed was in glass. The proportion of glass used in Cleveland, Columbus, Dayton, and Ironton, Ohio ranged from 55 to 72 percent of total sales in 1953-55. (Fig. 2.)

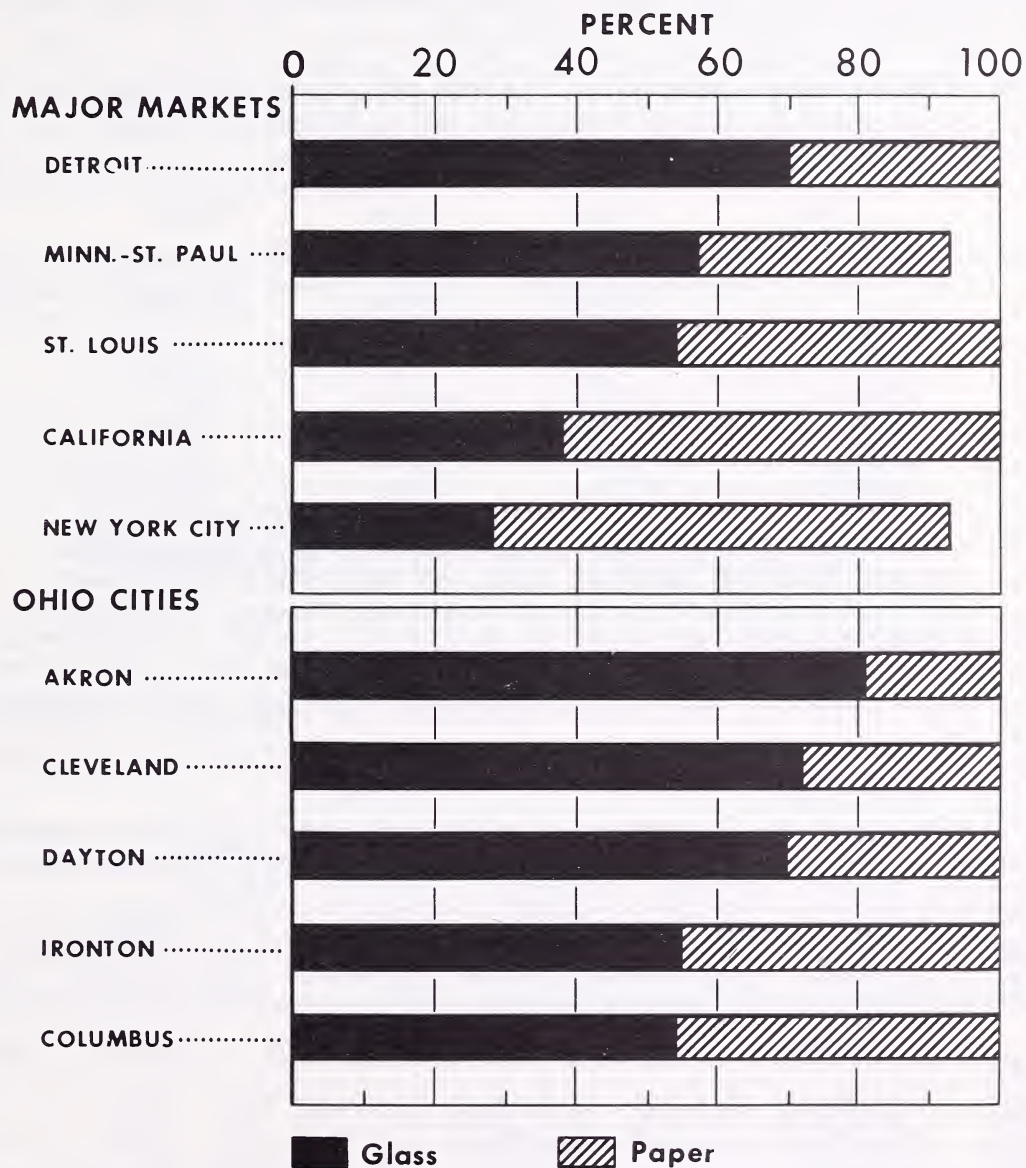
Proportions of glass and paper milk containers used in the California markets have remained stable over the past 5 years (1951-1955). The type of trade outlet for sales has greatly influenced the choice of container used.

Paper containers for milk were in use as early as 1908. They were not widely adopted until about 1938. New York City, Philadelphia, and Baltimore were among the first markets to install this improved technique in packaging milk. Many plants were equipped for paper packaging in 1938, but the rapidity of the spread was halted in 1941 by the conservation of critical materials in World War II. More than 1,000 cities in more than 25 States were receiving milk distributed in paper containers in 1941. City and State sanitary regulations which require restaurants, institutions, and schools to serve milk in its original container have increased the acceptance and use of paper containers for milk and milk products. Since 1947 there have been many innovations in the merchandising of milk. The paper carton is the accepted container for the coin operated vending machine. In the earlier years only the largest distributors were able to benefit from this improved method of handling milk. By 1954 nearly all dealers had access to milk packaged in paper containers.

The type of container used tends to be related to the sales outlet. Paper containers for fluid milk have been used more for sales from the plant platform or on wholesale and peddler routes than for retail routes.

PERCENTAGE OF FLUID MILK SOLD IN GLASS AND PAPER CONTAINERS

Selected Markets and Dates, 1953-55



U. S. DEPARTMENT OF AGRICULTURE

NEG. 3291-56 (6) AGRICULTURAL MARKETING SERVICE

Figure 2

California

Paper containers came into use in Los Angeles and San Francisco in 1938. About a third of the total milk distributed in these markets in 1941 was in this type of container. Since 1951 sales of milk in paper containers have been relatively stable at 62 to 64 percent of milk distributed in the many markets included in the State reports.

Table 20.--California: Proportion of glass and paper containers most commonly used in the sale of fluid milk, October 1951-55

Date	Glass	Paper	Total
	Percent	Percent	Percent
October			
1951.....	37.4	62.6	100.0
1952.....	35.8	64.2	100.0
1953.....	35.8	64.2	100.0
1954.....	37.8	62.2	100.0
1955.....	37.5	62.5	100.0

Compiled from reports of the California Crop and Live-stock Reporting Service, State of California, Department of Agriculture, Division of Marketing, Bureau of Agricultural Statistics.

The glass bottle in the 2-quart size made its appearance in California in 1941. It has competed with the paper container; proportions of sales in each were at the same levels from 1951 to 1955.

Table 21.--California: Proportion of glass and paper containers most commonly used in the sale of fluid milk, by type of route, October 1951-55

Date	Glass			Paper		
	Retail	Wholesale	Other <u>1</u>	Retail	Wholesale	Other <u>1</u>
	Percent	Percent	Percent	Percent	Percent	Percent
October						
1951	93.2	3.2	39.7	6.8	96.8	60.3
1952	93.2	2.6	38.2	6.8	97.4	61.8
1953	90.9	3.5	41.6	9.1	96.5	58.4
1954	90.8	3.2	43.2	9.2	96.8	56.8
1955	87.4	2.6	45.5	12.6	97.4	54.5

1/ Peddler-platform sales

Compiled from reports of the Crop and Livestock Reporting Board, State of California Department of Agriculture.

Detroit, Mich., Marketing Area

Glass containers in the Detroit, Mich., market area in September 1952 accounted for 72 percent of the total sales of fluid milk and fluid milk products. In September 1954 sales in glass were 70 percent of the total sales. There was an increase in number of glass and paper units sold in half-gallon containers during these years. There was little if any change in the number of sales in glass containers of other sizes, while there was a significant increase in sales in half-pint paper containers. Sales of regular, homogenized, and special milk in quart containers are most commonly in glass. Half-gallon containers of regular and homogenized milk are most commonly of paper. The half-gallon containers of special milk are almost 100 percent of glass.

Table 22.--Detroit, Mich.: Proportion of glass and paper containers most commonly used in the sale of fluid milk and fluid milk products, September 1952-54

Date	Glass	Paper	Total
	Percent	Percent	Percent
1952	71.9	28.1	100.0
1953	71.1	28.9	100.0
1954	69.6	30.4	100.0

Compiled from reports of the Market Administrator.

Table 23.--Detroit, Mich.: Proportion of glass and paper containers most commonly used in the sale of fluid milk, by specified types of milk and by container sizes, September 1952-54

Regular							
Date	Quarts			Half-gallon			
	Glass	Paper	Total	Glass	Paper	Total	
	Percent	Percent	Percent	Percent	Percent	Percent	
1952	78.4	21.6	100.0	41.1	58.9	100.0	
1953	79.9	20.1	100.0	37.8	62.2	100.0	
1954	82.9	17.1	100.0	46.0	54.0	100.0	

Homogenized						
	Glass	Paper	Total	Glass	Paper	Total
	Percent	Percent	Percent	Percent	Percent	Percent
1952	77.8	22.2	100.0	36.5	63.5	100.0
1953	79.3	20.7	100.0	32.1	67.9	100.0
1954	79.5	20.5	100.0	34.7	65.3	100.0

Special						
	Glass	Paper	Total	Glass	Paper	Total
	Percent	Percent	Percent	Percent	Percent	Percent
1952	94.3	5.7	100.0	100.0	---	100.0
1953	91.8	8.2	100.0	95.4	4.6	100.0
1954	93.5	6.5	100.0	100.0	---	100.0

Minneapolis-St. Paul Marketing Area

In the Minneapolis-St. Paul marketing area the sales of fluid milk in glass containers decreased from 76 percent of total sales in 1950 to 57 percent of total sales in 1954. The sales of fluid milk in the paper container increased from 22 percent of total sales in 1950 to 36 percent of total in 1954. The sales through bulk or other channels to restaurants, institutions, or schools also increased from 2 percent in 1950 to 6 percent in 1954.

Table 24.--Minneapolis-St. Paul: Proportion of glass and paper containers most commonly used in the sale of fluid milk, in the marketing area, 1950-54

Date	Glass	Paper	Other	Total
	Percent	Percent	Percent	Percent
1950.....	75.5	22.4	2.1	100.0
1951.....	69.5	27.4	3.1	100.0
1952.....	63.2	32.4	4.4	100.0
1953.....	59.5	35.4	5.1	100.0
1954.....	57.4	36.4	6.2	100.0

Compiled from reports of the Market Administrator.

New York Marketing Area

The paper container for fluid milk was introduced in New York City in 1929 and then again in 1935. Since 1949, sales of milk by stores have shown a decided shift from glass to paper. In the report of the Market Administrator from which these data were taken it is stated that home-delivered milk has been the biggest outlet for the glass container. Fairly extensive use has been made of the 2-quart paper container in an effort to make home delivery more attractive to consumers. The type of unit and type of milk distributed varies with the season of the year and the day of the week, but does have a definite influence on the type of container used. Sales of fluid milk on Sundays and holidays are smallest where business and industrial workers consume milk for lunch. Most of the sales in these areas are in pint and half-pint paper containers. Homogenized milk is usually sold in paper containers at wholesale transactions; and special milk in glass in sizable quantities on home delivery routes.

In Nassau, Suffolk, and Westchester Counties 62 percent of the total sales of fluid milk in 1955 were in glass, and the greater number were home-delivery sales.

Table 25.--New York: Proportion of glass and paper containers most commonly used in the sale of fluid milk in specified marketing areas, January 1949, 1951, and 1955

Date	Market	Glass	Paper	Other 1/	Total
		Percent	Percent	Percent	Percent
January					
1949....	New York marketing area	59.5	32.3	8.2	100.0
1951....	New York marketing area	44.0	48.2	7.8	100.0
1955....	New York marketing area	32.9	61.6	5.5	100.0
	: Nassau, Suffolk, and				
	: Westchester Counties	61.6	36.6	1.8	100.0
	: New York City	27.6	66.2	6.2	100.0

1/ Bulk in cans.

Compiled from reports of the Market Administrator.

Distribution of sales of fluid milk in glass and paper containers for the New York marketing area in January 1955 is shown in detail in table 26.

Table 26.--New York: Proportion of glass and paper containers most commonly used in the sale of fluid milk for specified marketing areas, by container size, January 1955

Container size	New York marketing area			Nassau, Suffolk, & Westchester			New York City		
	Glass	Paper	Cans	Glass	Paper	Cans	Glass	Paper	Cans
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
Quart.....	32.1	55.7	----	60.5	31.9	----	26.9	60.0	----
2-quart...	----	1.1	----	----	.8	----	----	1.2	----
1/3 qt....	.6	1.9	----	.7	----	----	.6	2.3	----
Pint.....	----	.5	----	----	.5	----	----	.5	----
1/2 pint..	.2	2.4	----	.4	3.4	----	.1	2.2	----
Bulk.....	----	----	5.5	----	----	1.8	----	----	6.2
Total.....	32.9	61.6	5.5	61.6	36.6	1.8	27.6	66.2	6.2

Compiled from reports of the Market Administrator.

Ohio Cities 1/

In Akron, Cleveland, Columbus, Dayton, and Ironton, Ohio, more fluid milk continues to be sold in glass than in paper containers. That type of container is closely associated with size of container as a factor in sales trends is clearly illustrated in the Ohio markets. Approximately one-third of all fluid milk sold in Akron was sold in the gallon jug, an important factor in the large proportion of sales in glass. Columbus on the other hand had a high percentage of its sales packaged in paper owing primarily to the large amount sold in paper 2-quarts home delivered. In Cleveland, Dayton, and Ironton a large proportion of the milk sold was packaged in 1-quart glass containers and delivered to homes.

Table 27.--Ohio: Proportion of fluid milk sales by type of container most commonly used, specified cities, 1953-55

City	:	Glass	:	Paper	:	Total
	:		:		:	
	:	Percent		Percent		Percent
Akron.....	:	81		19		100
Cleveland.....	:	72		28		100
Columbus.....	:	54		46		100
Dayton.....	:	70		30		100
Ironton.....	:	55		45		100

1/ These data are the results of a consumer-household survey made in the metropolitan area of each of these Ohio cities. Households were surveyed at random and in the 400 cases cited there was found to be less than 1 percent variation in the amounts purchased. Further checks were made using Market Administrator's data.

Compiled from Research Circular 29, Milk Marketing Distribution Systems in Ohio, Mitchell, Glen H. and Baumer, Elmer F., Ohio Agricultural Experiment Station, Wooster, Ohio, March 1956.

St. Louis, Mo., Marketing Area

The proportions of glass and paper containers used for milk in St. Louis, Mo., have changed materially in recent years. In 1949, 87 percent of the sales of regular and homogenized milk were in glass containers, but by 1954 sales in glass for these types of milk had declined to 54 percent.

Table 28.--St. Louis, Mo.: Proportion of glass and paper containers most commonly used in the sale of fluid milk in the marketing area, selected dates, 1949-54 1/

Date	:	Glass	:	Paper	:	Total
	:		:		:	
	:	Percent		Percent		Percent
November 1949.....	:	86.8		13.2		100.0
July 1950.....	:	83.1		16.9		100.0
August 1951.....	:	73.9		26.1		100.0
May 1952.....	:	70.9		29.1		100.0
November	:					
1952.....	:	68.8		31.2		100.0
1953.....	:	64.0		36.0		100.0
1954.....	:	54.4		45.6		100.0

1/ Sales of regular and homogenized milk.

Compiled from reports of the Market Administrator.

Western States

About 55 percent of the fluid milk sold in Colorado, Wyoming, Utah, Idaho, Oregon, and Washington was sold in paper containers in 1953. Forty percent of the remainder was sold in glass and 5 percent was sold as bulk milk. Colorado and Utah had the highest proportion of their milk distributed in paper containers, while Wyoming had the highest percentage distributed in glass. Idaho had an unusually high percentage of milk sold in bulk.

Table 29.--Western States: Proportion of glass and paper containers most commonly used in the sale of fluid milk in selected States, 1953

State	Glass	Paper	Bulk ^{1/}	Total
	Percent	Percent	Percent	Percent
Colorado	37	60	3	100
Wyoming	51	46	3	100
Utah	36	59	5	100
Idaho	33	45	^{2/} 22	100
Oregon	44	54	2	100
Washington	42	55	3	100
Weighted average	41	55	4	100

^{1/} Bulk milk refers to processed milk distributed in dispensary cans to be used in restaurants and institutions and that dispensed through automatic vending machines.

^{2/} No explanation given in the report for this percentage.

Compiled from Bul. 342, Marketing Grade A Milk-----Movement, Utilization, and Pricing in Six Western States and Alaska, by Willard D. Schutz, Wyo. Agr. Expt. Sta., June 1956.

TRENDS IN CONTAINER SIZES

Changes among container sizes have not been confined to one market or to markets in which new sizes or types have been introduced. Some markets have shown small declines or none in the use of any one size of container, while others have made spectacular gains attributed to expanded industrial activities, changes in consumption habits, and price differences. (Fig. 3.)

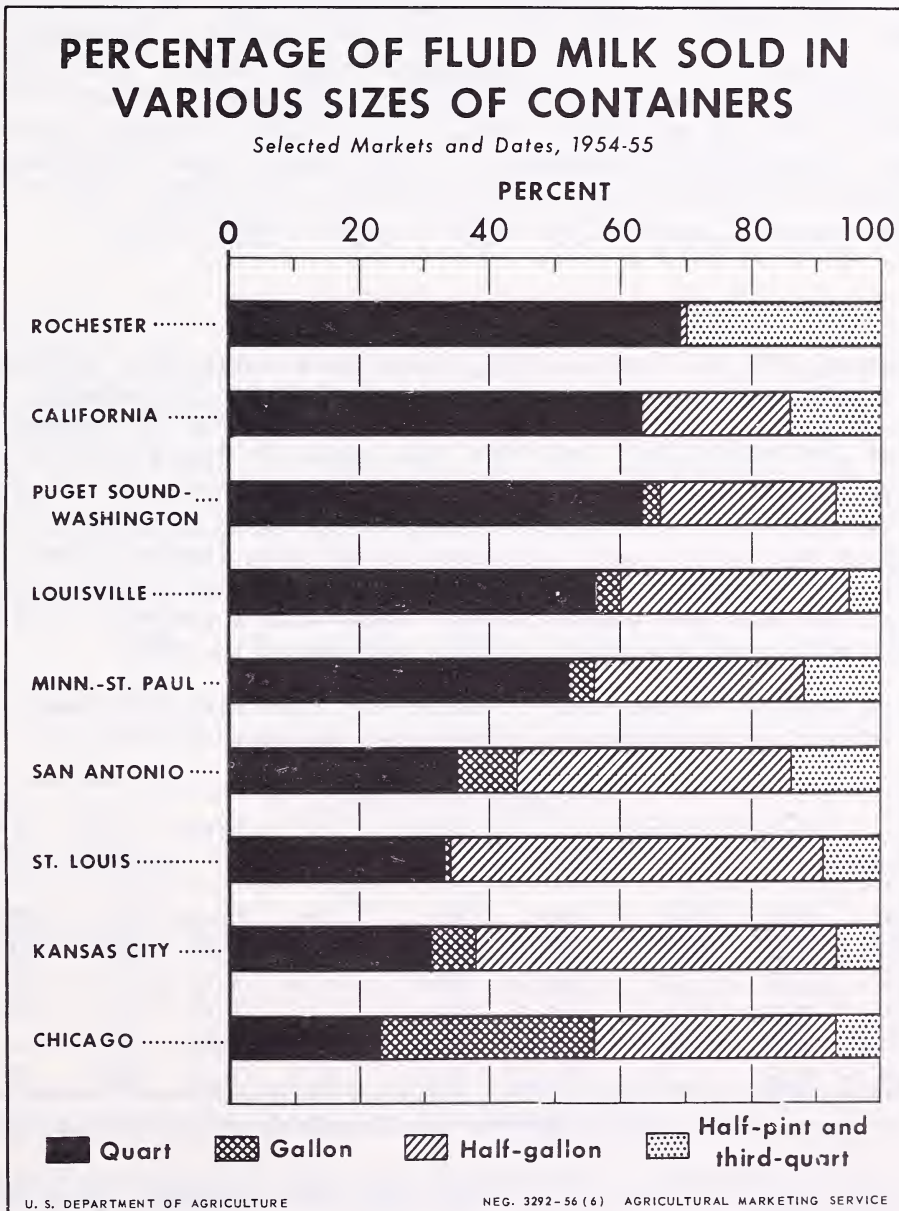


Figure 3

The sale of milk in gallon jugs on a cash and carry basis has been a feature of the shift from home delivery to sales at stores and dealers plants. The gallon jug and the 2-quart glass bottle have also been used on retail home-delivery routes. The increased sales in these 2 sizes of containers were largely at the expense of the single quart.

In Kansas City and St. Louis, Mo., and San Antonio, Tex., sales of fluid milk in half-gallon containers in 1954 and 1955 ranged from 42 to 57 percent of the total sales. In the California, Chicago, Ill., Louisville, Ky., Minneapolis-St. Paul, Minn., and Puget Sound areas sales in half-gallon containers ranged from 23 to 37 percent for the same period. Rochester, N. Y., and its marketing area were a contrast to the usual pattern with only about 1 percent of fluid sales being in half-gallon containers. Five of the nine cities reported 52 to 63 percent of their total sales in quart containers for 1954 or 1955. In Rochester 69 percent of total sales were in gallon containers. Half-gallon containers were most important, accounting for 37 percent and only 23 percent of the milk was sold in quart containers.

California

From October 1951 to October 1955, there were noticeable differences in the sizes of containers most commonly in use in California markets. In 1951, on all types of routes, the quart container accounted for 72 percent of the total sales of all fluid milk. In 1955, the sales of fluid milk in quart containers had fallen to 63 percent of the total and the sales of milk in the half-gallon had increased from 13 percent in 1951 to 23 percent in 1955. The sales of milk in the third-quart containers rose from insignificant proportions in 1951 to 3 percent in 1955. The pint and half-pint sizes each decreased as well as bulk and gallon sizes. Less than 1 percent of California sales of fluid milk were reported through dispensers in 1955.

Table 30.--California: Proportion of sales of fluid milk, by size of container for counties and districts, October 1951-55 ^{1/}

Date	: Bulk : dis- : penser	: Bulk:	Gallon	: 1/2 : :gallon:	Quart	: 1/3 : :quart:	Pint	: 1/2 : :pint:	3/4 pint	:Total
	: Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
1951..	: ----	5.4	0.5	12.6	72.2	0.2	1.8	7.2	0.1	100.0
1952..	: ----	5.0	.3	14.9	70.8	.3	1.4	7.2	.1	100.0
1953..	: ----	3.6	.2	17.3	69.9	.3	1.5	7.2	---	100.0
1954..	: ----	3.3	.4	20.2	67.4	.4	1.1	7.2	---	100.0
1955..	: .7	2.4	.1	23.1	63.2	3.3	1.2	5.8	.2	100.0

^{1/} Sales of fluid milk from districts and counties of plant location.

Compiled from reports of the California Crop and Livestock Reporting Service, State of California.

Sales of fluid milk in half-gallon containers have increased more in proportion through sales on retail routes than through sales on wholesale or peddler-platform route sales. The use of the quart container for fluid milk has become less important percentagewise in each of the channels of sale. The half-gallon size is the only container size to increase in its proportion of total sales (table 31). The increase was greatest on retail routes, second on wholesale routes, and last on peddler platform routes.

Table 31.--California: Proportion of sales of fluid milk by size of container and by route type of sale, for counties and districts, October 1951-55 ^{1/}

Retail									
Date	Bulk	Gallon	1/2 gallon	Quart	1/3 quart	Pint	1/2 pint	3/4 pint	Total
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
October									
1951	---	0.1	5.2	94.0	---	0.4	0.3	---	100.0
1952	.1	.1	6.8	92.6	---	.1	.3	---	100.0
1953	.1	.1	6.7	92.5	---	.3	.3	---	100.0
1954	.1	.1	8.9	90.5	---	---	.4	---	100.0
1955	.1	---	11.6	87.8	.1	.1	.2	---	2/ 100.0
Wholesale									
1951	7.4	0.6	15.6	61.8	0.4	2.7	11.4	0.1	100.0
1952	6.8	.4	18.1	60.8	.5	2.1	11.2	.1	100.0
1953	4.9	.2	22.0	59.0	.6	2.1	11.2	---	100.0
1954	5.3	.7	25.7	54.8	.7	1.9	10.8	.1	100.0
1955	3.7	.2	28.9	49.7	5.6	1.9	8.7	.2 2/	100.0
Peddler-platform									
1951	10.8	0.9	18.6	63.2	---	1.2	5.3	---	100.0
1952	9.2	.1	20.3	63.7	.1	1.1	5.4	---	100.0
1953	6.1	.3	21.8	64.4	.1	1.2	6.0	---	100.0
1954	2.5	.1	27.2	61.5	.1	.6	8.0	---	100.0
1955	3.0	.3	26.9	59.3	1.4	1.1	7.4	---	2/ 100.0

^{1/} Sales of fluid milk from districts and counties of plant location.

^{2/} Includes small percentage for dispenser gallon.

Compiled from reports of the Crop and Livestock Reporting Board, State of California Department of Agriculture.

Chicago, Ill.

The diversion of sales of fluid milk in quart containers to the sales of fluid milk in the half-gallon and gallon container has been more striking in the Chicago market than any other for which data are available. In 1940 the sales of fluid milk in quart containers were 73 percent of total sales. By 1955 they were only 23 percent. In 1940 half-gallon containers accounted for only 12 percent of total sales; by 1955 this was 37 percent. Sales of fluid milk in gallon containers were 6 percent of the total sales in 1940; 33 percent in 1955. The third-quart container has tended to replace the pint and half-pint container in institutional use and is used extensively in coin-operated vending machines.

Table 32.--Chicago, Ill.: Proportion of sales of fluid milk by size of containers, selected dates, 1934-55

Date	Bulk	Gallon	1/2 gallon	Quart	1/3 quart	Pint	1/2 pint	Total
	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
1934-35 1/...	7.6	----	----	88.4	0.3	2.5	1.2	100.0
December 2/...								
1940.....	3.5	6.1	12.5	73.3	.7	2.6	1.3	100.0
April								
1949.....	---	11.3	23.2	58.8	6.7	---	---	100.0
1950.....	---	12.7	34.5	46.4	6.4	---	---	100.0
1951.....	---	17.4	35.7	40.0	6.9	---	---	100.0
1952.....	---	21.9	35.9	35.5	6.7	---	---	100.0
1953.....	---	25.0	36.9	31.6	6.5	---	---	100.0
1954.....	---	29.8	36.9	26.9	6.4	---	---	100.0
1955.....	---	33.1	37.1	23.4	6.4	---	---	100.0

1/ Based on reports of 121 distributors.

2/ Based on reports of 11 dealers handling about 68 percent of the sales of Class 1 milk in the market.

Compiled from Pre-War Developments in Milk Distribution, Herrmann, L. F., and Weldon, W. C. and from reports of the Market Administrator.

Kansas City, Mo., Marketing Area

The half-gallon container was introduced into the Kansas City market in early 1950. Sales in this size package were only 3 percent of total sales in 1951 but by 1955 the sales volume had increased to 55 percent of the total. Sales of fluid milk in gallon or larger containers increased from 4 percent of total in 1951 to 7 percent in 1955. It was reported that in January 1955 about 48 percent of the gallon sales were in single gallon containers.

The quart container accounted for 86 percent of the sales of milk in the Greater Kansas City marketing area in 1951. In 1955 sales in this size of container had dropped to 31 percent of total.

Table 33.--Greater Kansas City, Mo.: Proportion of sales of fluid milk, in marketing area, by size of container, April 1951-55

Date	: Gallon <u>1</u> / :	: 1/2 : gallon	: Quart	: Pints and : 1/2 pints	: Total
	: <u>Percent</u>	: <u>Percent</u>	: <u>Percent</u>	: <u>Percent</u>	: <u>Percent</u>
April	:	:	:	:	:
1951.....	: 3.5	: 2.6	: 86.2	: 7.7	: 100.0
1952.....	: 3.8	: 12.2	: 76.7	: 7.4	: 100.0
1953.....	: 3.9	: 24.9	: 63.8	: 7.5	: 100.0
1954.....	: 4.9	: 45.4	: 43.1	: 6.5	: 100.0
1955.....	: 7.3	: 55.0	: 31.2	: 6.4	: 100.0

1/ Primarily in 2-1/2 gallon cans or larger and converted to gallon equivalents.

Compiled from reports of the Market Administrator.

Louisville, Ky., Marketing Area

Sales of milk in half-gallon containers in Louisville, Ky., increased from 1951 to 1955. This increase was considerably greater for homogenized than for regular milk. Sales in quart containers declined.

Table 34.--Louisville, Ky.: Proportion of fluid milk sales in the marketing area, by size of container, selected dates, 1951-55

Regular and homogenized combined							
Date	Gallon 1/	1/2 gallon	Quart	1/3 quart 2/	Pint	1/2 pint	Total
	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1951, June	1.8	6.2	86.5	0.3	0.7	4.5	100.0
December	1.9	7.6	75.4	.2	.6	14.3	100.0
1952, June	2.1	9.1	77.7	.2	.9	10.0	100.0
December	2.2	13.1	76.2	.2	.8	7.5	100.0
1953, June	2.4	14.6	76.8	.2	1.1	4.9	100.0
December	2.7	16.2	72.5	.2	.8	7.6	100.0
1954, June	3.6	17.1	73.4	.2	1.2	4.5	100.0
December	3.4	21.4	67.0	.2	1.1	6.9	100.0
1955, June 3/	4.0	35.2	54.7	.4	1.6	4.1	100.0
Regular milk							
1951, June	2.2	4.7	84.9	0.1	1.3	6.7	100.0
December	2.3	6.0	68.0	.1	1.1	22.5	100.0
1952, June	2.4	7.4	77.4	.1	.6	12.0	100.0
December	2.9	7.7	82.0	.2	.8	6.4	100.0
1953, June	2.9	8.4	85.0	.3	---	3.4	100.0
December	3.5	8.1	83.7	---	---	4.8	100.0
1954, June	4.0	7.5	84.8	---	---	3.8	100.0
December	3.6	8.8	84.2	---	---	3.4	100.0
1955, June 3/	3.8	10.0	83.0	---	---	3.1	100.0
Homogenized milk							
1951, June	1.2	7.9	88.4	0.6	0.1	1.8	100.0
December	1.4	9.2	83.4	.4	.1	5.5	100.0
1952, June	1.8	10.4	78.0	.2	1.1	8.5	100.0
December	1.9	16.2	72.8	.2	.7	8.2	100.0
1953, June	2.2	17.1	73.6	.2	1.4	5.5	100.0
December	2.4	18.8	69.0	.2	1.1	8.5	100.0
1954, June	3.4	19.5	70.5	.3	1.5	4.8	100.0
December	3.3	23.8	63.8	.3	1.3	7.5	100.0
1955, June 3/	4.1	39.3	50.1	.4	1.8	4.3	100.0

1/ Includes bulk wholesale, 1- to 10-gallon containers, and retail gallon containers. 2/ Includes 10-ounce containers. 3/ June 1955 figures are unaudited. Compiled from reports of the Market Administrator.

Minneapolis-St. Paul, Minn., Marketing Area

In the Minneapolis-St. Paul marketing area sales of milk in bulk containers (containers of 2 gallons or more) are greater than such sales in other markets included in this study. Bulk sales increased from 2 percent of total sales in 1950 to 6 percent in 1954. Sales of milk for use in dispensers are reported to be largely responsible for this trend. Sales in regular gallon containers failed to hold their ground, decreasing from 5 percent in 1950 to 4 percent in 1954. Half-gallon containers, on the other hand, grew from 3.2 percent in 1950 to 32 percent in 1954. Sales in quart containers were reduced by the shift to larger containers. The proportion of sales in quart units was 82 percent of the total sales in 1950, declining to 52 percent of the total in 1954.

Table 35.--Minneapolis-St. Paul, Minn.: Proportion of fluid milk sales in the marketing area by size of container, 1950-54

Date	Bulk	Gallon	1/2 gallon	Quart	Pint	1/2 pint	1/3 quart	Total
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1950.....	2.1	5.2	3.2	81.8	3.1	4.6	---	100.0
1951.....	3.1	5.8	7.0	77.2	2.8	4.1	---	100.0
1952.....	4.4	4.5	12.6	71.8	2.6	4.0	.1	100.0
1953.....	5.2	4.0	19.0	65.2	2.6	3.9	.1	100.0
1954.....	6.2	3.9	31.9	51.8	2.3	3.7	.2	100.0

Compiled from reports of the Market Administrator.

Ohio Cities

Milk in gallon jugs comprised 34 percent of the total fluid milk sold in Akron, Ohio, in 1953-55. In several of the Cleveland suburbs a small amount of milk was sold in gallon jugs. Only about 2 percent of the sales of fluid milk in Dayton and Ironton was in gallon jugs. Columbus, Ohio, did not have any milk sales in gallon jugs. Twenty percent or more of the total milk sales in each of the markets was in 2-quart containers. In Columbus where there was no competition from the gallon jug sales, 40 percent of all sales of milk were in the 2-quart container. The quart container outsold every other size despite the impact of the multi-quart container.

Table 36.--Ohio: Proportion of fluid milk sales, by size of container, specified cities, 1953-55

City	Gallon	Two-quart 1/	One-quart
	Percent	Percent	Percent
Akron.....	34	27	39
Cleveland.....	5	26	69
Columbus.....	--	40	60
Dayton.....	2	20	78
Ironton.....	2	24	74

1/ Includes two connected single quarts sold at the half-gallon price.

Compiled from Research Circular 29, Milk Marketing Distribution Systems in Ohio, Mitchell, Glen H. and Baumer, Elmer F., Ohio Agricultural Experiment Station, Wooster, Ohio, March 1956.

Puget Sound-Washington Milk Marketing Area

There was a rapid increase in the use of half-gallon containers for fluid milk sold in the Puget Sound-Washington marketing area between 1952 and 1955. In June 1952, only 3 percent of the fluid milk in the area was in half-gallon containers, while in 1955 the half-gallon sales amounted to 27 percent of the total disposition. The increasing use of the half-gallon container was accompanied by a decline of sales in quart containers from 88 percent of total sales in 1952 to 63 percent in 1955.

Table 37.--Puget Sound-Washington: Proportion of sales of fluid milk in the milk marketing area, by size of container, June 1952-55

Date	: : Gallon :	: : 1/2 : gallon :	: : Quart :	: : Pint :	: : 1/2 : pint :	: : Total :
June	: Percent	Percent	Percent	Percent	Percent	Percent
1952	3.3	2.7	88.2	0.4	5.4	100.0
1953	3.2	13.3	77.1	.4	6.0	100.0
1954	3.2	21.6	68.1	.4	6.7	100.0
1955	3.1	27.3	63.2	.4	6.0	100.0

Compiled from reports of the Market Administrator.

Rochester, N. Y., Marketing Area

The city of Rochester, N. Y., restricted the handling of bulk milk beginning July 1947, with a resulting decrease in the amount of milk sold in bulk and in quart containers. Sales in half-pint containers increased. In 1954, a new type of dispenser was approved and sales in bulk turned upward. The third-quart container was introduced into the market in September 1946. It is reported that 84 percent of the third-quart container sales in the Rochester area in 1954 were in factories, generally through vending machines.

Table 38.--Rochester, N. Y.: Proportion of sales of fluid milk in the marketing area, by size of container, selected dates, May 1944-54

Date	: : Bulk :	: : Gallon :	: : 1/2 : gallon :	: : Quart :	: : 1/3 : quart :	: : Pint :	: : 1/2 : pint :	: : Total :
May	: Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
1944	5.3	---	0.6	74.4	---	3.0	16.7	100.0
1946	4.8	---	.7	76.2	---	2.0	16.3	100.0
1948	3.2	0.1	.9	71.7	2.8	1.3	20.0	100.0
1950	3.1	.1	1.0	71.8	3.8	.8	19.4	100.0
1954	3.7	---	1.2	69.4	4.5	.5	20.7	100.0

See table 8 for source of data.

San Antonio, Tex.

There was a continual growth in the use of the gallon and the half-gallon size container for fluid milk in the San Antonio, Tex., market during the period 1952-54. The growth of sales in the half-gallon container was most pronounced. In 1952, such sales were 6 percent of the total, and in 1955, 42 percent. The use of the quart container for fluid milk declined from 83 percent of the total sales in 1952 to 35 percent of the total in 1955. The sales of milk in the pint container has never proved to be of great importance. However, sales in half-pints have increased from 8 percent in 1952 to 14 percent in 1955.

Table 39.--San Antonio, Tex.: Proportion of fluid milk sales, by size of container, selected dates, July 1952-55

Date	Gallon	1/2 gallon	Quart	Pint	1/2 pint	Total
	Percent	Percent	Percent	Percent	Percent	Percent
1952						
July	2.2	6.1	83.3	0.1	8.3	100.0
September	4.2	7.1	79.2	.1	9.4	100.0
1953						
February	5.3	11.1	73.5	.1	10.0	100.0
May	5.7	13.2	71.6	.1	9.4	100.0
September	6.1	15.9	68.6	.1	9.3	100.0
1954						
January	5.9	18.9	66.7	---	8.5	100.0
April	8.8	21.1	61.7	.1	8.3	100.0
June	11.3	26.8	54.3	.2	7.4	100.0
July	10.9	28.2	52.7	.3	7.9	100.0
September	9.5	31.7	49.9	.2	8.7	100.0
December	9.2	36.3	46.3	.1	8.1	100.0
1955						
January	9.0	36.9	38.6	.2	15.3	100.0
February	9.2	37.2	36.9	.2	16.5	100.0
March	9.2	37.9	35.8	.3	16.8	100.0
April	9.3	39.7	35.7	.2	15.1	100.0
May	9.4	40.2	35.3	.2	14.9	100.0
June	9.3	41.5	35.4	.3	13.5	100.0

Compiled from reports of the Market Administrator.

St. Louis, Mo., Marketing Area

Fluctuations in the proportion of container sizes used for fluid milk in the St. Louis, Mo., marketing area during the 15-year period 1939-1954 are dominated by the decline of the gallon and the rise of the half-gallon. Sales of milk in the gallon container had been 15 percent of the total in 1939 and declined to 1 percent in 1954. The half-gallon container increased from 14 percent of total sales of fluid milk in 1939 to 57 percent in 1955. Sales of fluid milk in quart containers fluctuated throughout the period, overall dropping from 61 percent of total sales in 1939 to 33 percent in 1954.

Table 40.--St. Louis, Mo.: Distribution of sales of fluid milk, in the marketing area by size of container, selected dates, 1939-54

Date	Bulk	Gallon	1/2 gallon	Quart	1/3 quart	Pint	1/2 pint	Total
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
July								
1939..	3.9	15.4	14.3	60.8	0.7	1.2	3.7	100.0
1940..	5.0	15.4	16.8	55.8	.9	1.4	4.7	100.0
1941..	4.5	15.5	20.0	52.0	1.0	1.9	5.1	100.0
1942..	3.9	16.3	23.6	43.0	1.4	4.0	7.8	100.0
1943..	3.1	15.4	26.5	41.9	1.9	2.8	8.4	100.0
1944..	.2	4.5	38.5	47.2	1.7	2.2	5.7	100.0
1945..	.3	3.7	37.5	49.4	2.1	1.9	5.1	100.0
May								
1946..	.8	3.1	35.0	51.4	2.2	1.2	6.3	100.0
July								
1947..	.7	2.5	35.6	53.0	3.3	.7	4.2	100.0
August								
1948..	.4	6.5	36.1	48.7	2.3	.7	5.3	100.0
July								
1949..	.4	3.1	30.0	59.5	2.1	.4	4.5	100.0
1950..	.5	2.8	32.9	56.3	2.2	.5	4.3	100.0
August								
1951..	.8	2.0	36.0	53.8	2.4	.5	4.5	100.0
May								
1952..	.9	.8	44.9	44.9	1.6	.5	6.4	100.0
November								
1952..	1.0	.8	46.2	43.6	1.6	.5	6.3	100.0
1953..	.8	1.4	50.5	39.3	1.4	.4	6.2	100.0
1954..	1.4	1.1	56.8	33.1	1.2	.3	6.1	100.0

Compiled from reports of the Market Administrator.

APPENDIX

Table 41.--Proportion of sales of fluid milk by size of container for specified markets, selected dates

Date	Market	Regular						Total
		Gallon	1/2 gallon	Quart	1/3 quart	Pint	1/2 pint	
		Pct.	Pct.	Pct.	Pct.	Pct.	Pct.	Pct.
1946								
May	Connecticut 1/	---	---	98.2	0.2	0.1	1.5	100.0
1954								
January ..	Connecticut	---	---	98.8	---	---	1.2	100.0
1954								
September	Detroit, Mich.	---	25.0	75.0	---	---	---	100.0
September	Memphis, Tenn.	6.0	46.0	48.0	---	---	---	100.0
1953								
December	Milwaukee, Wis.	---	74.0	26.0	---	---	---	100.0
1955								
January	New York, N. Y.	---	1.0	99.0	---	---	---	100.0
1954								
June	Seattle, Wash.	---	24.0	76.0	---	---	---	100.0
1955								
August ..	Wichita, Kans.	---	66.0	34.0	---	---	---	100.0

1/ Comparison of daily average sales of fluid milk, by size of container, on retail routes of 19 Connecticut milk dealers. Reports of 471 routes in May 1946 and 620 routes in January 1954 with the same distributors in each period.

Compiled from reports of the Market Administrator.

Table 42.--Knoxville, Tenn.: Proportion of sales of fluid milk by size of container, 1953-54

Date	Regular				Total
	1/2 gallon	Quart	Pint	1/2 pint	
	Percent	Percent	Percent	Percent	Percent
1953	17.8	61.0	6.4	14.8	100.0
1954	22.4	51.6	5.7	20.3	100.0
Homogenized					
1953	10.6	28.6	6.7	54.1	100.0
1954	16.7	26.7	7.9	48.7	100.0

Compiled from reports of the Market Administrator.

